
CHAPTER 12

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PERSONAL SAFETY DEVICES AND SAFEGUARDS

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PERSONAL PROTECTIVE EQUIPMENT (PPE)

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CHAPTER 12

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PERSONAL SAFETY DEVICES AND SAFEGUARDS

12.00 INTRODUCTION

The use of personal protective equipment is subject to several safety and health regulations contained in the Cal-OSHA General Industry Safety Orders (GISO), Construction Safety Orders (CSO), and/or the Electrical Safety Orders (ESO).

This chapter provides information about specific items and/or categories of personal protective equipment used to protect and shield employees from injury or illness.

12.01 PURPOSE

The purpose of this chapter is to provide detailed information about each type of personal protective equipment, and how it can protect each major body area; head, eyes and face, ear, respiratory, hands and arms, body and legs, and feet.

Every effort has been made to provide a reference to a specific GISO, CSO, and/or ESO section(s) applicable to the use and type of each item of personal protection equipment.

Unless stated otherwise, the Department provides all required personal protective equipment.

12.02 POLICY STATEMENT

Managers and supervisors are responsible to ensure that appropriate personal protective equipment is readily available to protect employees from exposure to physical or environmental hazards that may cause injury or illness.

12.03 PERSONAL CLOTHING GUIDELINES

Employees are expected to report to work reasonably dressed to protect themselves during routine assignments and from exposure to usual and/or predictable physical and environmental conditions found in the workplace.

Employees shall be given adequate advance notice of field trips so they may properly dress to protect themselves from exposure to the conditions in the new assignment. See Section 12.19, Body and Leg Protection, for more details.

12.04 PERSONAL PROTECTIVE EQUIPMENT STANDARDS

Title 8 of the California Code of Regulations, also known as the Cal-OSHA Regulations, require employers to provide personal protective equipment. Section 3380, Personal Protective Devices of the General Industry Safety Orders (GISO), and Section 1514 of the Construction Safety Orders (CSO) require:

- That all safety devices and safeguards, that are required to be used by employees, are of the proper type for the expected exposure and of such design, strength, and quality as to eliminate, preclude, or mitigate the hazard.
- That personnel protective equipment shall be distinctly marked so as to facilitate identification of the manufacturer.
- That the supervisor shall assure that the employee is instructed and uses personnel protective equipment in accordance with the manufacturer's instruction.
- That employee-owned/visitor-owned personal protective equipment complies with standards and regulations prescribed by Cal-OSHA and Caltrans. Supervisors shall assure that this equipment is maintained in a safe, sanitary condition.
- That all safety devices and safeguards shall be of such design, fit, and durability as to provide adequate protection against the hazards for which they are designed.
- That safety devices and safeguards shall be reasonably comfortable and shall not unduly encumber the employee's movements necessary to perform his/her work.

Supervisors are responsible to ensure that employees are given appropriate personal protective equipment wherever they may be exposed to hazardous conditions that can cause injury or illness.

American National Standard Institute (ANSI)

All Caltrans personal protective equipment that requires special identification shall be clearly identified with the appropriate American National Standard Institute (ANSI) logo, specification numbers, and/or manufacturers mark, label, tag, initial, monogram, serial number, or other applicable identification.

Employees are personally responsible to use good judgement and wear personal protective equipment as directed, or whenever they are involved in a work activity where they can reasonably be expected to be exposed to a hazard, or where a hazard may cause injury or illness.

When employees are issued equipment for the first time or when new devices are introduced, the supervisors will provide training as to how and why the equipment must be used.

Supervisors should allow employees to try out new personnel protective equipment and/or new devices prior to actual use. Employees should offer their comments and discuss the equipment before the work begins.

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12.05 HEAD PROTECTION - HARD HATS

Section 3381, Head Protection of the General Industry Safety Orders (GISO), and Section 1515, Head Protection of the Construction Safety Orders (CSO) require:

- Employees exposed to falling or flying objects, or hazardous chemical substances, and/or electrical shock and burns shall wear a hard hat for head protection.
- Hard hats shall meet the applicable requirements and specifications established by the American National Standards Institute (ANSI), as follows:

NOTE 1. GISO 3381(b)(1), CSO 1515(a)(2) For exposure to flying or falling objects, or electric shock/burns (600 volts or less) hard hats purchased after January 12, 1995, shall comply with ANSI Z89.1 1986, Class A or Class B, or if purchased before January 12, 1995, shall comply with ANSI Z89.1-1969, Class A. This applies to all work activities, except Electrical and Tree Maintenance work activities. See Note 2. below.

NOTE 2. GISO 3381(c), CSO 1515(a)(3)(4) For exposure to flying or falling objects, and high voltage electric shock (above 600 volts) shall comply with ANSI Z89.2 1971, Class B, or if purchased after December 4, 1992, shall comply with ANSI Z89.1-1981, Class B. This applies to all work activities, and Electrical and Tree Maintenance work activities. See Note 1. above.

12.05-1 HARD HATS - DESIGN FEATURES

The Department authorizes the use of two (2) hard hat designs; the traditional and the western cowboy-style.

- The Department provides only the traditional style-hard hats. (Cap style with front brim, or hat style with wide brim all around.)
- The Department does not provide the western cowboy-style hard hat. Employees are authorized to wear the western cowboy-style hard hat, but must purchase their own.

12.05-2 HARD HATS - PROHIBITED USE:

- Employees engaged in Electrical and Tree Maintenance work activities are prohibited from wearing the western (cowboy) style-hard hat.
- Metal hard hats are prohibited.

12.06 HARD HATS - WHEN TO WEAR

Employees are responsible to wear hard hats during any work activity that may expose them to a head injury. Some of the most common work activities requiring hard hats are:

- When employees are exposed to falling or flying objects, or hazardous chemical substances, and/or electrical shock and burns.
- Whenever an employee is working on-foot within the right-of-way of any highway or road, which includes freeways, multi-lane highways, and city streets.
- When employees are working on-foot during any work activity where motorized equipment or motor vehicles are being used.
- While operating any motorized equipment not equipped with an “enclosed cab.”

NOTE: Enclosed Cab.

1. An “enclosed cab” is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass.
2. Motorized equipment with a covered operator area or roll over protection only is not consider an “enclosed cab.”
3. Hard hats may be removed by the operator while driving a motor vehicle or motorized equipment which has an “enclosed cab”, but the operator shall put on their hard hat when exiting the vehicle or equipment and before beginning any on-foot work activity where hard hats are required.

NOTE: Proper Fit and Protection.

The hard hat suspension shall be correctly adjusted to ensure a proper and secure fit. chin straps shall be required as work conditions warrant. Supervisors are also responsible to ensure the style of the hard hat is properly suited for the assigned work. For example, if the hard hat restricts an employee’s ability to safely perform their work, or exposes an employee to an unsafe working condition, the supervisor shall direct the employee to wear hard hat protection that is suitable to the assigned work.

12.07 HARD HAT COLOR CODE RECOGNITION

The following colors have been adopted for official use to distinguish different work activities within Caltrans.

- White colored hard hat with the traditional Caltrans "CT" logo is the designated hard hat for most Caltrans employees and is used in most work settings.
- Yellow colored hard hat is the accepted standard color for electrical work crews.
- White colored hard hat **without** the traditional Caltrans "CT" logo is used by the "Adopt-A-Highway-Program" participants. The Adopt-A-Highway logo may be embossed on the hard hats.
- Orange colored hard hats have been adopted for use by the "Special Program People" performing litter pickup.

12.08 HARD HAT AUTHORIZED DECALS

Employees should have the traditional Caltrans "CT" logo decal on their hard hat.

Employees may also have a First Aid certification decal and an Accident Free (xx) Years decal affixed to their hard hats. The employee's name and reflective tape may also be applied to hard hats.

Employees shall not place or affix any other decals, tags, stickers, monograms, badges, or similar items on their hard hats without supervisory approval.

12.09 EYE AND FACE PROTECTION

Section 3382, Eye and Face Protection of the General Industry Safety Orders (GISO), and Section 1516 of the Construction Safety Orders (CSO) require:

- Employees who work where there is a risk of receiving face and eye injuries such as punctures, abrasions, burns or contusions as a result of contact with flying particles, hazardous substances, projections, pesticides, or light rays in connection with welding operations shall be protected with appropriate face and eye protection.

NOTE:

Appropriate face and eye protection means using safety glasses, goggles, or face shields suitable for the expected hazard.

- Suitable screens or shields isolating the hazardous exposure from welding operations to nearby employees shall be used.
- Where exposed to injurious light rays, from arc welding or cutting, the shade of lens shall be selected in accordance with Table EP- 1 in GISO Section 3382. Copies of the table are available from the Safety Office. See Section 12.15, Eye Protection for Welding Operations, for details.
- If an employee wears prescription eye glasses, suitable safety glasses or goggles shall be provided.

American National Standard Institute (ANSI)

Eye and face protection shall be clearly identified with the appropriate American National Standard Institute logo.

If purchased before January 12, 1995 it shall have the (ANSI) Z87.1-1968 logo.

If purchased after January 12, 1995 it shall have the (ANSI) Z87.1-1989 logo.

12.10 WHEN TO WEAR EYE PROTECTION

Employees are responsible to wear eye protection during any work activity that may expose them to eye injury.

The following examples illustrate some of the most common work activities where eye protection is required:

- Eye protection shall be worn whenever an employee is working on-foot within the right-of-way of any highway or road, which includes freeways, multi-lane highways, and city streets.
- Eye protection shall be worn by employees on-foot during any work activity where motorized equipment or motor vehicles are being used.
- Eye protection shall be worn by the operator (e.g., while driving) of any motorized equipment that is not equipped with an enclosure or cab.
- Eye protection may be removed by the operator while driving a motor vehicle or motorized equipment which has an enclosure or cab, but shall be put on when exiting the vehicle or equipment and before beginning any "on-foot" work activity.

Additional examples where eye protection is required:

- **Clear and Present Danger**

Eye protection shall be worn whenever there is a clear and present danger of falling or flying objects; e. g., chain saw operations, flagging traffic, operating lathes, or machinery with exposed moving parts (belts and pulleys), grinders, welding, etc.

- **Designated "Eye Protection Area"**

Where local conditions require wearing eye protection at all times such as maintenance stations located under bridge structures, equipment shops, welding operations, etc., that have been designated an "Eye Protection Area."

Employees who wear prescription eye glasses and are required to enter a work environment that will expose them to possible eye injury must wear safety glasses or goggles, suitable for the expected hazard, over their prescription eye glasses.

Supervisors in field assignments will maintain a sufficient number of safety glasses, goggles or face shields at the work site to accommodate the needs of their employees.

Supervisors in office settings should maintain a supply of eye protection devices at the work site if appropriate. Supervisors can order safety glasses, goggles, and face shields through the District or Headquarters Procurement Offices.

12.11 STATE-FURNISHED PRESCRIPTION SAFETY GLASSES

Qualifying employees who wear prescription eye glasses shall be provided with at least two (2) pair of State-furnished safety glasses annually, if the employee's prescription changes. (Employee vision insurance plans usually provide for an annual eye examination.)

- **Who qualifies for State-furnished prescription safety glasses**

Employees who work in field locations qualify for State-furnished safety glasses.

Working in field locations means working in Maintenance, Construction, Equipment Shops, Surveys, Structures Construction, Structures Maintenance, or who regularly take field trips to similar work areas as part of the daily work assignment.

Employees who are not assigned to field activities or do not regularly take field trips do not qualify for State-furnished prescription safety glasses.

- **Who pays for the eye examination**

The cost of the eye examination is paid for by the employee, through the employee's vision insurance plan. The time required for the eye examination is charged to the employee's leave balances.

- **Ordering replacement broken, scratched, lost or damaged glasses**

Replacement lenses and/or frames will be paid for by the Department when there is a change in the prescription or the glasses are broken, scratched, or damaged during any work activity through no fault of the employee.

NOTE:

Supervisors do not have to order two (2) pair of glasses every time an employee breaks only one (1) pair of glasses. Glasses may be ordered one pair at a time. Additional orders shall not be made to circumvent the two pair per year limit.

- **Prescription eye glasses for spraying pesticides**

Employees who wear prescription eye glasses and spray pesticides may be provided with one (1) additional pair of prescription safety glasses.

The glasses used for pesticide spraying are manufactured with specialized frames to provide front, brow, and temple protection in compliance with Title 3, Department of Food and Agriculture Pesticide Application Regulations.

Employees who wear prescription eye glasses and work as Hazmat spill response team members may be provided with one (1) pair of specialized lenses to be fitted inside their full facepiece respirator.

12.12 SPECIFIC DETAILS ABOUT ORDERING PRESCRIPTION SAFETY GLASSES

- **An overview of what can be ordered**

Qualifying employee will be furnished with at least two (2) pairs of glasses, and may also qualify for a third pair of safety glasses.

The first two (2) pairs of prescription safety glasses are for employees who work in field locations, and can be ordered in any combination of clear, tinted, or photo-gray extra glass. One pair of the glasses must be clear or photo-gray extra.

The reason for issuing at least one (1) pair of safety glasses in either clear or photo-gray extra glass is to ensure that the employee will always have at least one pair of safety glasses available for either day or night work.

- **For pesticide spraying**

To comply with the requirements of Title 3, Department of Food and Agriculture Pesticide Application Regulations, one (1) pair of safety glasses must be ordered with specialized frames that provide front, brow, and temple protection.

This pair of the safety glasses must be ordered in clear or photo-gray extra to assure that the employee will always have a pair of safety glasses available for day work or night work.

- **For full facepiece respirator**

The specialized ground lenses for full facepiece respirator must be ordered in clear or photo-gray extra.

All prescription safety glasses must be ordered on the PRESCRIPTION SAFETY GLASSES/LOCAL REQUEST. The Purchasing Branch in the Administrative Service Center will process all orders through a Contract Delegation Purchase Order (CD/PO).

State-furnished safety glasses are manufactured and assembled by California Prison Industries (PIA). PIA is a division of the California Department of Corrections. Under existing law, all State agencies are required to order glasses for their employees through PIA.

PIA normally use eye glass frames that fit the average person, therefore, oversize or undersize frames and lenses sizes may require special ordering procedures. Employees or procurement personnel should contact their District or Headquarters Safety Office for assistance.

The employee's Vision Insurance Plan is used to pay for the eye examination. The doctors prescription is included in the Form 0205, and is sent to PIA where the lenses are fitted to PIA furnished frames.

Employees may select eyeglass frames from designated locations; i.e., Maintenance Regional Offices, District/Headquarters Warehouses, or other designated locations.

A sample of Form ADM 0205, PRESCRIPTION SAFETY GLASSES/LOCAL REQUEST, is included at the end of this chapter.

12.13 TEMPLE WIDTH OF GLASSES AND DRIVING RESTRICTIONS

The California Vehicle Code, Section 23120, TEMPLE WIDTH OF GLASSES, states:

"No person shall operate a motor vehicle while wearing glasses having a temple width of one-half inch or more if any part of such temple extends below the horizontal center of the lens so as to interfere with lateral vision."

Safety glasses with side temple protectors, including those required to comply with the Title 3 pesticide spray regulations, which may violate this motor vehicle code section, shall not be worn while driving.

12.14 EYE PROTECTION FOR CONTACT LENS WEARER'S

Contact lenses do not provide eye protection. Employees who wear contact lenses should not enter a work environment where there is a risk of receiving eye injuries unless they wear eye protection.

- Contact lenses are prohibited when:
 - working with solvents, gases, mists, dust, and vapors;
 - performing automotive/equipment repairs;
 - working with storage batteries (replacement, charging, jumping, etc.);
 - welding (gas/arc);
 - working on machinery with moving parts; i.e., grinders, lathes;
 - working in trees, bushes, or shrubs; and/or
 - working with chemicals/pesticides.
- Contact lenses may be worn, but eye protection (glasses or goggles) must also be worn over the contact lens:
 - during any work in an environment that may cause injury to the eyes;
 - working along highways, freeways; and/or
 - working within a maintenance, construction, or similar work zone.

12.15 EYE PROTECTION FOR WELDING OPERATIONS

Proper helmets or goggles must be worn during welding, cutting, or brazing operations to prevent eye damage. It is critical that the correct tint or shade of protection is used. See the General Industry Safety Orders (GISO) section 3382, "Eye and Face Protection" for guidance.

The tinted glass in welding helmets and goggles is permanently marked to indicate the shade or tint and must be tempered and free from flaws. Do not use lenses that are not the correct shade or tint for the work. Generally, goggles or helmets for oxy-acetylene are not acceptable for electric arc welding/cutting. Makeshift devices such as painted lenses, combined lenses, sunglasses (unless specifically made for the work), etc., will not be used.

Inspect goggles and helmets before use, check lenses and body for cracks, pinholes, or other damage. Repair or replace before use. Helmets must protect the face, neck, and ears from direct radiant energy.

Suitable shields and screens or other methods shall be used to isolate welding/cutting operations from nearby employees.

12.16 EMERGENCY EYEWASH AND SHOWER REQUIREMENTS

Section 5162, “Emergency Eyewash and Shower Equipment” of the General Industry Safety Orders (GISO), requires that a plumbed or self-contained eyewash meeting sections 5,7 or 9 of ANSI Z358.1- 1981, be provided in all work areas where, during routine or foreseeable emergencies, the eyes of the employee may come into contact with a substance that is corrosive, a severe irritant, causes permanent tissue damage, or is toxic by absorption. If the substance can get on the skin or body, an emergency shower meeting ANSI Z358.1 – 1981 sections 4 or 9 is also required.

These ANSI requirements require a continuous water flow for at least 15 minutes. Water hoses, sink faucets, showers, etc. are not acceptable eyewash facilities. ANSI approved personal eyewash bottles and drench hoses can supplement approved eyewash facilities, but cannot be used instead of the required eyewash.

The eyewash or shower equipment shall be in accessible locations requiring no more than 10 seconds to reach. The area around the eyewash/shower shall be maintained free of all items that would obstruct their use. Plumbed eyewash and shower equipment shall be activated at least monthly to flush the lines and verify proper operation. This monthly inspection should be documented.

12.17 EAR AND HEARING PROTECTION

The General Industry Safety Orders (GISO), Sections 5095 through 5100, and Section 1521 of the Construction Safety Orders (CSO) require the Department to administer a hearing protection program for its employees.

Hearing protection shall be worn whenever the noise level is 90 decibels or more. If the employee is exposed to noise hazards exceeding 85 decibels over an 8-hour time weighted average he/she must be enrolled in the Department’s Hearing Conservation Program. For in depth information regarding this program consult Chapter 13.

Employees exposed to hazards affecting the ear, or noise levels that may cause hearing loss, must be provided with appropriate hearing protection. Supervisors shall:

- Ensure that employees receive training.
- Make available, as needed, a variety of suitable hearing protection equipment to employees.
- Request periodic safety inspections to monitor work operations and new equipment to identify potential exposure to noise levels that may equal or exceed the Cal-OSHA standard.

Training shall cover the effects of noise on hearing, the various types of hearing protection devices, their care and use.

Hearing protection devices come in many forms. The most common are earplugs and ear muffs, as well as variations of each style.

Earplugs can be either reusable or disposable. Reusable earplugs will be cleaned thoroughly after each use with mild soap and water and stored in a clean protective container. Disposable earplugs are discarded after each use and should not be taken in and out frequently during their use. Reusing them may lead to infection.

Earmuffs provide attenuation of sound as well as some protection for the outer ear in particularly dirty situations. Muffs may be used along with earplugs in extremely noisy environments.

The District or Headquarters Office of Safety and Health can assist in arranging for testing of equipment, areas or processes to determine the need for hearing protection. As a general rule, if you can not hear normal conversation at a distance of two feet, the noise level is too high and hearing protection is needed.

12.18 HAND AND ARM PROTECTION

Section 3384, Hand Protection of the General Industry Safety Orders (GISO), and Section 1520 of the Construction Safety Orders require:

- Employees who may be exposed to hazards to the hand such as cuts, burns, harmful physical or chemical agents which are capable of causing injury or impairments shall be provided with hand protection.
- Hand protection, such as gloves, shall not be worn where there is a danger of the hand protection becoming entangled in moving machinery or materials.

Glove selection shall be based upon what is best suited for the expected hazard, and selection should include such things as thickness, or gauge of the material, which directly affects the employee's dexterity, tactility, and hand fatigue. Select heavier gloves for durability and greater protection in jobs where heavy or sharp objects will be handled.

Gloves used for handling toxic chemicals must comply with the requirements described in the Material Safety Data Sheet (MSDS) and the label for the particular product being handled.

Employees exposed to caustic or toxic chemicals, flying objects, abrasives, or sparks should wear long sleeve shirts which protect their hands and arms from injury.

Sleeveless shirts and garments that expose bare shoulders or bare arms do not provide adequate protection against most physical and environmental hazards and are not acceptable.

Employees should not wear loose sleeves, tails, ties, lapels, cuffs, or other loose clothing around moving machinery or other locations which can expose them to injury.

Supervisors are expected to require employees to wear clothing that is appropriate for the job assignment and protects the employee from work site hazards.

12.19 BODY AND LEG PROTECTION (Back Belts and Chainsaw Leg Protection)

Section 3383, Body Protection of the General Industry Safety Orders (GISO), and Section 1522 of the Construction Safety Orders require:

- Employees shall be provided with appropriate body protection whenever their work exposes parts of their body, not otherwise protected, to hazardous or flying substances or objects.
- Employees shall wear clothing appropriate for the work being done. Loose sleeves, tails, ties, lapels, cuffs, or other loose clothing which can be entangled in moving machinery shall not be worn.
- Clothing saturated or impregnated with flammable liquids, corrosive substances, irritants or oxidizing agents shall be removed and shall not be worn until properly cleaned.

In addition to Cal-OSHA requirements listed above, the following body and leg protection guidelines shall be followed:

- **Personal Clothing Must Protect the Body and Legs**

Employees are responsible to report to work adequately dressed to protect themselves from routine physical and environmental hazards found in the workplace.

Personal clothing should provide protection from such things as sunburn, poison oak, insect bites, vegetation, and/or chemicals.

Garments that expose upper body parts (midriff) and bare legs; e.g., shorts and cutoff pants do not provide adequate protection against most physical and environmental hazards. Supervisors are expected to require employees to wear clothing that is appropriate for the job assignment and protects the employee from work site hazards.

Employees exposed to caustic or toxic chemicals, hot materials, splashing or flying materials, abrasives, corrosives, and/or sparks shall not be allowed to wear short pants or other personal apparel which increase their exposure to injury.

- **Back Belts (lumbar support)**

NOTE:

It is Departmental policy that back belts shall not be purchased as personal protective equipment unless prescribed by a physician.

The National Institute for Occupational Safety and Health (NIOSH) does not recommend the use of back belts to prevent injuries among uninjured workers, and does not consider back belts to be personal protective equipment.

The most effective means of minimizing the possibility of back injury is through training on proper lifting techniques.

Back belts may be purchased only for employees who have a doctor's prescription specifically indicating that the employee should use a back belt for specific work activities. Medical prescriptions will usually refer to back belts and similar devices as "lumbar support".

Procurement personnel should not process requests for back belts unless approved by the Headquarters Safety and Health Officer.

See Chapter 7 - ERGONOMICS for more details.

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- Leg Protection (Chain Saw CHAPS)

Chain saw leg protection shall be worn by all chain saw operators while working on the ground. Use of chain saw leg protection for employees working above ground level is optional. Supervisors shall determine when this option will be applied.

All chain saw operators shall successfully complete the "Chain Saw Training" program and be properly certified.

12.20 WARNING GARMENTS: VEST, JACKETS, SHIRTS, AND COVERALLS

Section 1598(c) and (d) TRAFFIC CONTROL FOR PUBLIC STREETS AND HIGHWAYS, and Section 1599(d) and (e) FLAGGERS, of the Construction Safety Orders (CSO) requires:

Employees, and flaggers, shall be clearly visible to approaching traffic at all times. While working on foot and exposed to the hazards of vehicular or equipment traffic, they shall wear orange, strong yellow-green, or fluorescent versions of these colored warning garments such as, vests, jackets, shirts, or coveralls. During hours of darkness, warning garments shall also have silver, orange, or strong yellow-green colored reflective material that is visible at a minimum of 1,000 feet.

To ensure maximum employee visibility to approaching traffic, warning garments in the appropriate color (orange, strong yellow-green or fluorescent versions) shall be worn. The following rules apply **during daylight hours**:

- A vest of appropriate color equipped with reflective material is the standard for all Caltrans operations.
- Vests, jacket, or coveralls of appropriate color without reflective material, or shirts (button or pullover) of appropriate color may be worn only during daylight hours.
- Warning garments shall be worn whenever working on-foot, within the right-of-way or near vehicular or equipment traffic.
- Flaggers shall wear warning garments of appropriate color on the upper body. White coveralls may also be worn to increase visibility.
- Raingear must be of appropriate color on the upper body, or a standard vest must be worn over the raingear.

To ensure additional visibility at night, warning garments in the appropriate color (orange, strong yellow-green, or fluorescent versions) shall also be equipped with reflective material (silver, orange, or strong yellow-green fluorescent versions) that is visible at a minimum of 1,000 feet. The following rules apply **during hours of darkness**:

- Warning garments of appropriate color equipped with reflective material and worn over white coveralls are required whenever working on-foot, within the right-of-way or near vehicular or equipment traffic. White coveralls equipped with reflective material conforming to the ANSI/ISEA 107-1999 standard may be worn in lieu of the colored reflective vest.
- A jacket of appropriate color equipped with suitable reflective material may be worn over white coveralls.
- Raingear must be of appropriate color on the upper body and equipped with reflective material, or a standard vest equipped with reflective material must be worn over the raingear.

Supervisors may allow white clothing, such as white shirt on upper body and long white pants on lower body, or white paper coveralls as a substitute for white cloth coveralls.

THE FOLLOWING APPLIES TO ALL WARNING GARMENTS:

White coveralls or other white clothing should not be worn during snow or fog conditions. The warning garments of appropriate color equipped with reflective material should be considered during periods of dawn, sunrise, dusk, sunset, and inclement weather.

Warning garments that are faded, damaged, or have low visibility shall be discarded. Warning garments that are contaminated by a hazardous material should not be laundered at home. If warning garments with reflective material are laundered at home, use mild detergent and low heat settings to avoid damage to the reflective material.

Employee-owned, or visitor-owned, warning garments must comply with this section, or shall not be worn. Supervisors shall ensure that warning garments are of the appropriate color and maintained in a safe and sanitary condition. (See Section 12.04 of this chapter for additional information about PPE standards.)

12.21 RAINGEAR - Jackets and Pants

Employees shall be provided with raingear to protect them from exposure to rain, snow, or other wet conditions.

The standard raingear for Caltrans consists of orange upper body, yellow arms with reflective material. Lower body is single color yellow pants.

See Section 12.20 WARNING GARMENTS: VEST, JACKETS, SHIRTS, AND COVERALLS for additional information.

12.22 FOOT PROTECTION

Section 3385, Foot Protection, in the General Industry Safety Orders (GISO) requires:

- Employee footwear must be appropriate for the hazard to which the employee will be exposed and provide protection from hot, corrosive, poisonous substances, falling objects, crushing or penetrating actions which may cause injuries to the foot.
- The footwear shall also provide protection from slips, falls, and moisture for employees who are required to work in abnormally wet locations.
- Footwear which is defective or inappropriate to the extent that its ordinary use creates the possibility of foot injury shall not be worn.
- Safety-toe footwear purchased after January 12, 1995 shall meet the requirements and specifications in American National Standard (ANSI), Footwear Z41-1991.

It is Caltrans policy that employees are responsible to provide their own footwear.

Caltrans will furnish footwear for special work activities including metal toe covers, high top rubber boots, hip waders, or rubber overshoes for use during inclement weather.

Supervisors are responsible to ensure that employees wear appropriate footwear for the task and/or work area in which they are assigned.

OFFICE WORK - As a general rule most shoes are acceptable footwear for office work activities.

However, when leaving the office to make a field trip to a construction or maintenance work zone, or working/walking on a freeway or highway, additional foot protection may be necessary. Leaving the office to visit another building or driving a vehicle to another city would not generally require additional foot protection.

Athletic or running shoes are considered acceptable foot protection for some types of fieldwork activities. For example, if an employee is going to walk along the paved shoulder of a highway or city sidewalk where the walking surface is level, athletic shoes should be considered acceptable footwear.

FIELD WORK - As a minimum, appropriate footwear for employees working in field work assignments; highway maintenance, highway landscape, construction, surveys, equipment shops, and/or building maintenance environments such as painters, plumbers, electrician, or similar work activities is defined as:

"A serviceable leather work shoe or boot with soles made of neolite, neoprene, crepe rubber, or similar material which will not disintegrate or be affected by petroleum solutions and will retain a non-slip surface under wet, damp, oily, or muddy conditions."

• **UNACCEPTABLE FOOTWEAR**

The following are examples of unacceptable footwear for employees who work in field assignments:

- sandals and slippers,
- open toe shoes and/or high heels,
- footwear with leather soles, or
- any type of "loose open weave upper"

"Loose open weave upper" is defined as footwear which has been fabricated with loose open weave which would allow liquids to easily penetrate the fabric.

The reference to loose open weave is not intended to prohibit the use of footwear which has been fabricated with portions of Gortex, nylon, or other similar tightly woven fabrics which prohibit or impedes penetration of the fabric.

Generally, shoes that are not specifically fabricated for use in work environments found in highway maintenance and or highway construction activities would fall into the category of prohibited footwear for the purposes of this interpretation.

For example, athletic or running shoes are not acceptable foot protection for fieldwork in maintenance, construction, surveys, or similar work activities.

- **FOOT PROTECTION FROM CHEMICAL HAZARDS**

When using hazardous materials such as chemical herbicides, methacrylate, or other similar materials, the supervisors shall read the product label and the Material Safety Data Sheet (MSDS) to determine the type and level of foot protection required. The supervisors should ensure that the employee's footwear provides adequate foot protection from the hazardous material being used.

- **FOOT PROTECTION FROM CRUSHING HAZARDS**

When working with heavy beams, materials drill rods, jackhammers, etc., where the employee's foot can be crushed or cut, appropriate foot protection shall be required that meets (ANSI Z41 - 1991). Toe caps or metatarsal guards are available. For specialized situations contact the Headquarters or District Safety and Health Office for assistance.

12.23 JEWELRY

Section 3384, Hand Protection, Note 2. of the Cal-OSHA, General Industry Safety Orders (GISO) states:

- Wrist watches, rings, bracelets, pendants, earrings, or other jewelry should not be worn while working with or around machinery with moving parts, storage batteries, or around electrically-energized equipment.

12.24 ELECTRICAL PROTECTION

The Electrical Safety Orders (ESO) are contained in Subchapter 5 of the Cal-OSHA regulations. The following is a brief overview of some of the common electrical safety order regulations that shall be followed in Caltrans operations.

This information is general in nature and should not be used as a substitute for the entire electrical standards contained in the ESO.

The Electrical Safety Orders (ESO) provide minimum standards to safeguard life or limb, health, property of employee and public welfare by regulating and controlling the design, construction, quality of materials, and use of electrical devices and apparatus.

Sections 2320.1 through 2320.9 of the Electrical Safety Orders (ESO) requires:

- Only qualified persons shall work on electrical equipment or systems.
- Only qualified persons shall be permitted to perform any function in proximity to energized parts.
- Employees who are exposed to electrical hazards as a result of installing, operating, maintaining, or inspecting electrical apparatus shall be provided with appropriate electrical protective devices, which include hard hats, safety glasses, gloves, aprons, or arm protectors.
- Work shall not be performed on exposed energized parts of equipment or systems unless: supervisors have reviewed the work, employees are qualified electrical workers, employees are instructed on the work techniques and hazards involved, suitable personal protective equipment is used, suitable eye protection is used, suitable barriers, tags, or signs are in place and a final inspection is made.
- Hard hat protection must comply with Section 12.05, Head Protection.
- Electrical battery storage and battery handling areas must be equipped with emergency drench showers and eye wash stations. Employees must wear eye protection with side as well as frontal protection and acid-resistant gloves and aprons.
- Electrical protective devices shall conform with applicable ANSI standards. For specific information covering electrical work, contact an electrical supervisors or superintendent located in each Caltrans district.

12.25 FALL PROTECTION

Fall protection must be used whenever an employee is exposed to falling more than 7½ feet to the ground or level below. Fall protection is usually provided by standard guardrails or barriers, which protect the edge. Otherwise, either a personal fall restraint or personal fall arrest system is required. **All employees using aerial lift equipment must use a personal fall protection system.**

➤ STANDARD GUARDRAILS

These are the preferred method of fall protection. They prevent the employee from falling.

- Standard guardrails consist of a top rail and a mid rail that must be between 42 to 45 inches high, and must protect openings on all open sides.
- Refer to Title 8 CCR § 3209 for specific guardrail construction requirements.

➤ PERSONAL FALL RESTRAINT SYSTEM

The purpose of a personal fall restraint system is to prevent an employee from falling. This system restrains the employee from approaching the edge.

A personal fall restraint system consists of:

- A body belt (or body harness with side D-rings),
- An anchorage point capable of supporting 4 times the intended load,
- A 2 foot lanyard (for situations where a 2 foot lanyard is too short for the employee to reach their work, a longer lanyard may be used but must be rigged to prevent the employee from falling).

If the fall restraint cannot be rigged in such a way as to prevent a fall a personal fall arrest system is required.

➤ PERSONAL FALL ARREST SYSTEM

The purpose of a personal fall arrest system is to arrest the employee's fall from a work level. This system allows the employee to work in situations where a fall is possible, but must limit free fall to a maximum of 4-feet.

A personal fall arrest system consists of:

- a body harness with D-ring at the center of the back,
- a 4-foot decelerating/shock-absorbing lanyard (a longer lanyard may be used but **must be rigged to limit free fall to 4 feet**),
- an anchorage point designed to hold a minimum of 5000 pounds or, maintain a safety factor of at least two or, a means of attaching the lanyard to a substantial member of the structure with equivalent strength,
- adequate clearance to ensure the employee cannot contact the ground, any obstructions below, passing traffic, etc. in case of a fall.

NOTE: A shock-absorbing lanyard will lengthen approx. 4 feet during a fall arrest, for a total length of approx. 8 feet (if rigged to allow for only a 4-foot fall as required). If the employee is 6 feet tall, at least 14 feet of clearance is required.

Fall arrest systems cannot be utilized when working in aerial equipment unless that equipment is designed to support at least 5000 pounds or it can maintain a safety factor of at least two. Because most aerial equipment cannot support this load, personal fall restraint is the preferred fall protection system in aerial lift equipment.

Specific locations requiring use of fall protection equipment include:

- employees exposed to falling over 7-1/2 feet from walkways, catwalks, scaffolds, work surfaces, bridge decks, perimeters of buildings, shaftways, openings, or sloped roofs;
- employees working on suspended scaffolds, boatswain's chairs, float scaffolds, and suspended staging;
- employees working in trees; and
- employees working in vehicle mounted elevating work platforms and aerial lift equipment (bucket trucks, pin-on-platforms, etc.).

All fall protection equipment must be properly labeled to show that it complies with ANSI Standard A10.14–1991, or Z359.1-1992.

EXCEPTIONS:

- Tree worker's saddles must be "approved", but do not fall under the ANSI A10.14 - 1991 standard.
- Bridge inspection and cut slope operations where specially trained employees use mountain climbing equipment. Such equipment must be labeled as meeting Union International Alpine Association (UIAA) requirements. These employees must also follow and comply with a special Code of Safe Practices prepared specifically for their operations.

Additional requirements for Fall Protection:

- Fall arrest system use requirements
 - 1) Make provisions for prompt rescue in case of a fall. At least one additional person on site, trained in use of fall arrest equipment, aerial lift, emergency lowering procedures, and the emergency rescue plan will be provided. If an outside agency (i.e. fire department) will provide rescue, advance contact to confirm availability is required.

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- 2) Position equipment to allow adequate clearance. If working over a traffic lane, the lane must be closed if contact with traffic is possible.
- 3) Employees must be secured from falls at all times. Do not use guardrails for anchorage points unless specifically designed for that purpose. (standard guardrails mounted on Caltrans sign structures are not designed for anchorage)
- Lanyards will not be knotted or tied on themselves to reduce length;
 - Lanyards will not be clipped together;
 - Snap hooks on lanyards shall be of the locking type;
 - Snap hooks shall not be hooked to loops on web lanyards;
 - No more than one snap hook shall be hooked to any one D-ring;
 - All employees who use fall protection equipment will be trained in its use;
 - All fall protection equipment will be inspected daily, before each use, and defective equipment will not be used;
 - If lanyards are attached to vertical lifelines, a separate vertical lifeline shall be provided for each employee;
 - If lanyards are attached to horizontal lifelines, up to two (2) employees may each use horizontal lifeline;
 - lifelines shall be designed and installed as required by the ANSI standards; and,
 - lanyards shall be secured to a substantial member of a structure, equipment, tree, or to securely rigged horizontal or vertical lifelines.

Inspection of fall protection equipment shall focus on:

- | | |
|-------------------------------------|---------------------------|
| • cuts | • operational defects |
| • cracks | • heat |
| • tears or abrasions | • acid or other corrosion |
| • undue stretching | • overall deterioration |
| • faulty springs | • mildew |
| • defective or distorted snap hooks | |

Contact the District/Headquarters Safety and Health Office for assistance.

12.26 WORKING OVER OR NEAR WATER

Section 1602, Work Over or Near Water of the Construction Safety Orders, and Section 3389, Life Rings and Personal Flotation Devices of the Cal-OSHA, General Industry Safety Orders, require:

- Where there is a danger of drowning, employees must wear a U.S. Coast Guard approved personal flotation device.
- At least one (1) approved 30-inch life ring with not less than 150 feet of 600 pound capacity line attached shall be kept readily available.
- Life rings shall not be more than 200 feet apart.
- Any personal flotation device shall be approved by the U.S. Coast Guard as a Type I PFD, Type II PFD, Type III PFD, or their equivalent.
- Personal flotation devices shall be maintained in good condition.
- These items must be inspected before and after each use for defects that would alter their strength or buoyancy.
- They shall be removed from service when damaged so as to affect their buoyant properties or capability of being fastened.
- One or more lifesaving boats will be readily accessible at all times. Boats shall be properly maintained, ready for emergency use and equipped with oars and oarlocks, boat hook, anchor, ring buoy with 50 feet of 600 lb. Line and 2 life preservers. Oars are not required with boats with outboard motor.

If lifeboats cannot be used because of swift currents, lines shall be stretched across stream with tags or floating planks at intervals less than six (6) feet. If impracticable, other arrangements to provide effective lifelines shall be provided.

PRESCRIPTION SAFETY GLASSES/LOCAL REQUEST**FORM ADM 0205**

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
PRESCRIPTION SAFETY GLASSES/LOCAL REQUEST
ADM-0205 (REV. 5/93)

PERSONAL INFORMATION NOTICE

Pursuant to the Federal Privacy Act (P.L. 93-579) and the Information Practices Act of 1977 (Civil Code Sections 1798, et seq.), notice is hereby given for the request of personal information by this form. The requested personal information is voluntary. The principle purpose of the voluntary information is to facilitate the processing of this form. The failure to provide all or any part of the requested information may delay processing of this form. No disclosure of personal information will be made unless permissible under Article 6, Section 1798.24 of the IPA of 1977. Each individual has the right upon request and proper identification, to inspect all personal information in any record maintained on the individual by an identifying particular. Direct any inquiries on information maintenance to your IPA Officer.

STATE FURNISHED PRESCRIPTION SAFETY GLASSES will be provided to employees who wear prescription eye glasses and work in field locations where there is a risk of receiving eye injuries such as punctures, abrasions, burns or contusions as a result of contact with flying particles, hazardous substances, projections, or light rays in connection with welding operations.

"Employees who do not regularly work in locations where there is a risk to eye injury do not qualify for State furnished safety glasses."

See the Caltrans Employee Safety and Health Manual, Chapter 12-Personal Protective Equipment, for additional information regarding State furnished eye glasses.

I WORK WITH AND/OR AROUND:

☐ AN AREA WHERE THERE
IS RISK OF EYE INJURY
AS STATED ABOVE.

☒ PESTICIDES
(May qualify for
safety glasses)

SEND GLASSES TO:

| | | | |
|-----------------------------------|---------------|---|----------------|
| EMPLOYEE'S NAME (TYPE OR PRINT) | | EMPLOYEE'S SIGNATURE | |
| EMPLOYEE'S BUSINESS PHONE | Sample | EMPLOYEE'S CLASSIFICATION | |
| BRANCH | | JOB ASSIGNMENT (Include all areas of performance) | |
| BUSINESS ADDRESS | | | |
| CITY | | ZIP CODE | |
| SUPERVISOR'S NAME (Print or Type) | | SUPERVISOR'S SIGNATURE OF AUTHORIZATION | |
| SUPERVISOR'S BUSINESS ADDRESS | | BRANCH | |
| OPTOMETRIST OR HOSPITAL NAME | | OPTOMETRIST OR HOSPITAL PHONE NUMBER | |
| BUSINESS ADDRESS | | CITY | STATE ZIP CODE |

| SOURCE | | CHG DIST | EXPENDITURE AUTHORIZATION | SUB - JOB | PREFIX | SPECIAL DESIGNATION | F.A. | AGCY. OBJ. | AMOUNT |
|--------|------|-------------|------------------------------|-----------|--------|---------------------|------|---------------|--------|
| DIST. | UNIT | | | | | | | | |
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ADDITIONAL COMMENTS

OFFICE USE ONLY

| | | | |
|---|--|-------------------------|---|
| STYLE OF FRAMES LOANED | | DATE LOANED | DATE FRAMES RETURNED |
| FIRST PAIR | | DATE RX SENT TO PIA | SECOND PAIR |
| <input type="checkbox"/> CLEAR <input type="checkbox"/> TINTED <input type="checkbox"/> PHOTOGRAY | | | <input type="checkbox"/> CLEAR <input type="checkbox"/> TINTED <input type="checkbox"/> PHOTOGRAY |
| GLASSES RECEIVED BY | | DATE GLASSES RECEIVED | GLASSES RECEIVED BY |
| DATE GLASSES RECEIVED | | | DATE GLASSES RECEIVED |
| <input type="checkbox"/> FIRST PAIR | | DATE | GLASSES WERE RETURNED TO PIA BECAUSE: |
| <input type="checkbox"/> SECOND PAIR | | GLASSES RETURNED TO PIA | |

PERSONAL PROTECTIVE EQUIPMENT (PPE)

JULY 1996

12-30

PERSONAL PROTECTIVE EQUIPMENT (PPE)

THIS SPACE AVAILABLE FOR NOTES: